

THE INVENTION CLAIMED IS

1. A microchannel Cross load array, comprising:
- a cathode,
- an array of sample wells,
- an array of waste wells, said sample well comprising twice the number
- 5 of waste wells,
- an anode, and
- an array of functionally identical channels, each channel having an
- injection point with one well of said array of sample wells, one well of said array
- of waste wells, said cathode and said anode.

2. The microchannel Cross load array of Claim 1, which said cathode
- and said anode each define common slots.

3. The microchannel Cross load array of Claim 1, wherein said sample wells with parallel sides are selected from the group to define substantially circular holes, tapered holes, and holes.

4. The microchannel Cross load array of Claim 1, wherein said waste wells define substantially circular holes.

5. The microchannel Cross load array of Claim 1, wherein both said sample and waste wells define substantially circular holes.

6. The microchannel Cross load array of Claim 1, wherein said sample wells define substantially square holes.

7. The microchannel Cross load array of Claim 1, wherein said waste wells define substantially square holes.

8. The microchannel Cross load array of Claim 1, wherein both said sample and waste wells define substantially square holes.

9. The microchannel Cross load array of Claim 1, wherein both said sample and waste wells are formed on a biaxial, collinear grid by EDM machining or other machining process producing orthogonal rows and columns.

Sub
#27
C1

006220"4539350

Sub
C1
Cont'd

10. The microchannel Cross load array of Claim 1, wherein said channels are identical in shape.

11. The microchannel Cross load array of Claim 1, wherein said array of channels form flow paths for each channel which are identical in shape, using multiple mirror image pieces.

12. The microchannel cross load array of Claim 1, wherein said array of channels form equal or unequal flow paths from said injection point to said cathode and from said injection point to said waste wells.

13. The microchannel Cross load array of Claim 1, wherein said array of channels form symmetric flow paths from said injection point to said cathode and to said waste wells.

14. The microchannel Cross load array of Claim 13, wherein said symmetric flow paths are of the same lengths.

15. The microchannel Cross load array of Claim 1, wherein said array of sample wells are located in a plurality of rows.

005380"466650

Sub
C1

Sub
C17

[illegible]

5

70

said architecture producing a dense layout of functionally identical shaped microchannels, sample wells, and waste wells, and including a common cathode and a common anode,

said microchannels each having an injection point interconnecting a sample well, a waste well, a cathode and an anode,

10 said microchannels each defining equal length flow paths between said injection point and said waste, and between said injection point and said cathode.

21. The architecture for microchannel arrays of Claim 20, wherein said flow paths are symmetric.

22. The architecture for microchannel arrays of Claim 20, wherein said sample wells are located in a plurality of rows, and wherein said waste wells are located in a single row.

23. The architecture for microchannel arrays of Claim 20, wherein said microchannels each include flow paths from said injection point to a sample well and from said injection point to said anode.

24. The architecture for microchannel arrays of Claim 23, wherein adjacent flow paths of said channels located adjacent said anode have a channel pitch, P_{ch} , wherein adjacent sample wells have a sample pitch, P_s , and wherein $P_s = 2P_{ch}$.

25. The architecture for microchannel arrays of Claim 24, wherein the channel pitch, P_{ch} , is about 0.5-4.5 mm.

Sub
C1

Sub
C1
Contd

Sub
C1
Cont'd

27. The architecture for microchannel arrays of Claim 20, wherein said common cathode and said common anode are each of a slot configuration.

28. The architecture for microchannel arrays of Claim 20, wherein said sample well are located in a plurality of rows, wherein said waste wells are located in a single row, and wherein each of said rows has a common bias.

000007